State of Louisiana
Department of Natural Resources
Coastal Restoration Division and
Coastal Engineering Division

2005 Operations, Maintenance, and Monitoring Report

for

Sediment Trapping at the Jaws Project

State Project Number TV-15
Priority Project List 6

June 2005
St. Mary Parish

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2005 Operations, Maintenance, and Monitoring Report
for
Sediment Trapping at the Jaws (TV-15)

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Preface

The Operations, Maintenance, and Monitoring (OM&M) Report format is a streamlined approach which combines the Operations and Maintenance annual project inspection information with the Monitoring data and analyses on a project-specific basis. This report includes monitoring data collected through December 2004, and annual Maintenance Inspections through June 2005.

This is the first in a series of OM&M reports for Sediment Trapping at The Jaws (TV-15).

I. Introduction

The TV-15 Sediment Trapping at the Jaws project comprises approximately 4,172 acres (1,688 ha). Ninety-three percent, or 3,880 acres (1,570 ha) of the project is classified as open water, while the remaining 292 acres (118 ha) is classified as fresh marsh. The project is located near "The Jaws" in the northeast segment of West Cote Blanche Bay, approximately 10 miles southwest of Franklin, Louisiana, in St. Mary Parish (figure 1).

The area has experienced major hydrologic changes since the construction of the Gulf Intracoastal Waterway (GIWW) in the 1920's, which created a hydrologic connection between the project area and the sediment-laden Atchafalaya River. During southeast winds, sediment-laden freshwater is also being delivered to the project area via Cote Blanche Bay (Walker et al. 1997). Canal construction has greatly increased the tidal exchange between East and West Cote Blanche Bays and the interior marsh (Good et al. 1995).

These hydrologic changes are reflected in changes in salinities and marsh types. The area surrounding "The Jaws" supported vegetation typical of brackish marsh in 1949 (O'Neil 1949) and in 1968 (Chabreck et al. 1968). However, since 1978 the area has been classified as fresh marsh (Chabreck and Linscombe 1978, 1988). This conversion took place as fresh water from the Atchafalaya River began reaching Vermilion Bay. The current plant community consists mainly of *Sagittaria platyphylla* (delta duck potato), with lesser amounts of *Zizaniopsis miliacea* (southern wildrice), *Phragmites australis* (common reed), *Colocasia esculenta* (elephant ear), *Typha* spp. (cattail), and *Sesbania drummondii* (rattlebox) (U.S. Department of Agriculture, Natural Resources Conservation Service [USDA/NRCS] 2001). Approximately 10% of the shallow open water area in the project is dominated by submerged aquatic vegetation (SAV) such as *Vallisneria americana* (water celery), *Najas quadalupensis* (southern naiad), *Myriophyllum spicatum* (Eurasian watermilfoil), and *Heteranthera dubia* (star grass).

Marsh loss between 1957 and 1990 in the nearby Cote Blanche Hydrologic Restoration (TV-04) project area was calculated by USDA/NRCS personnel to be more than 2,400 acres (971.5 ha), approximately 73 acres/yr (29.5 ha/yr) during the 33 year span. Shoreline erosion was calculated to be 15 ft/yr (4.5 m/yr), based on planimetric analyses of aerial photography for this period.

The construction of terraces will reduce fetch and turbidity, induce sediment deposition, and result in the creation of marsh in shallow open water areas. The dredging of distributary channels should increase freshwater and sediment flow into the project area. The high sediment availability makes the project area a good site for creating marsh by trapping sediments from the GIWW and Cote Blanche Bay. Construction of the project was completed in December 2004.

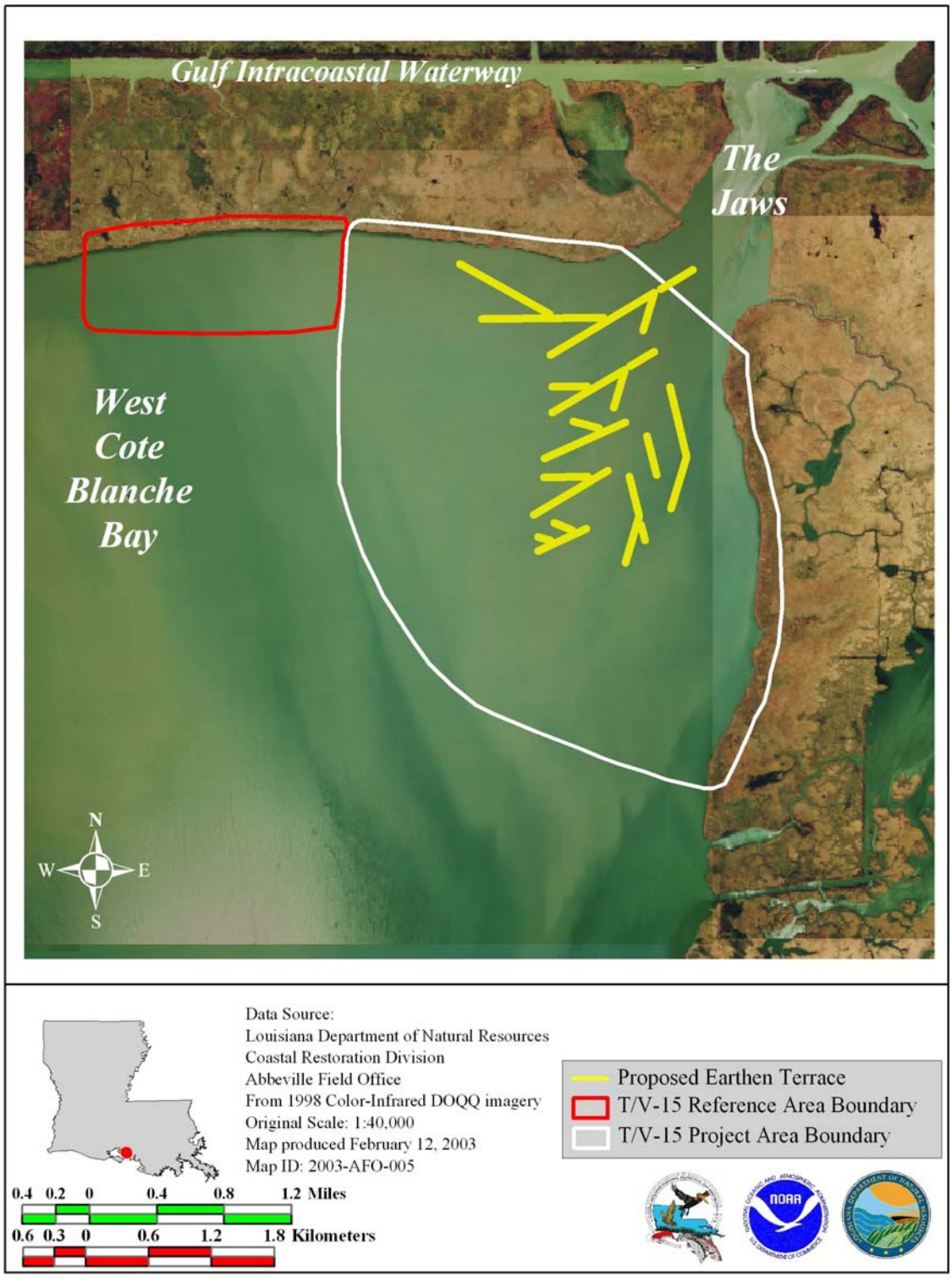

Figure 1. Sediment Trapping at the Jaws (TV-15) project and reference areas.

II. Maintenance Activity

a. Project Feature Inspection Procedures

The purpose of the annual inspection of the Sediment Trapping at "The Jaws" Project (TV-15) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, Louisiana Department of Natural Resources (LDNR) shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs. As noted in Appendices A, B, and C, initial project goals included documenting inspections with photographs, creating a three-year budget projection, and taking field inspection notes.

An inspection team consisting of two representatives of LDNR and one representative of the National Marine Fisheries Service (NMFS) performs annual visual inspections. If damage is apparent, LDNR and NMFS assign a team to perform a detailed inspection and report on the findings. The team documents the condition of the project features and may employ a survey party to make detailed measurements.

b. Inspection Results

No inspection was conducted in calendar year 2005 since construction on this project was recently completed in December of 2004, and vegetative planting was being performed in the spring of 2005.

c. Maintenance Recommendations

i. Immediate/ Emergency Repairs

None

ii. Programmatic/ Routine Repairs

None

d. Maintenance History

There has been no required maintenance on this project.

III. Operation Activity

a. Operation Plan

There are no water control structures associated with this project, therefore no Structural Operation Plan is required.

III. Operation Activity (continued)

b. Actual Operations

There are no water control structures associated with this project, therefore no Structural Operation Plan is required.

IV. Monitoring Activity

a. Monitoring Goals

The objectives of the Sediment Trapping at the Jaws Project are to reduce shoreline erosion rates and create marsh in shallow open water areas with the construction and planting of earthen terraces and the dredging of distributary channels to mimic a natural deltaic formation.

The following goal will contribute to the evaluation of the above objectives:

1. Evaluate land/water ratios within the project area.

b. Monitoring Elements

Aerial Photography:

Aerial photography and satellite imagery will be collected for the entire coast through Coastwide Reference Monitoring Stations-W*etlands (*CRMS-*Wetlands)*. The aerial photography will only be analyzed for CRMS-*Wetlands* stations. The satellite imagery will be analyzed to determine land and water areas for the entire coast. This imagery will be subset and used to qualitatively evaluate changes in land and water areas within the TV-15 project area at a coarse (25-m) resolution. Photography and satellite imagery for the Teche/Vermilion Basin will be collected and analyzed for years 2005, 2008, and every three years thereafter.

c. Preliminary Monitoring Results and Discussion

Data collected up to December 2004 has been included in the following results and discussion.

Aerial photography:

Aerial photography was obtained on December 20, 2004, just after construction was completed. A land-water classification map and the acreages of land/water are presented in figure 2 and table 1.

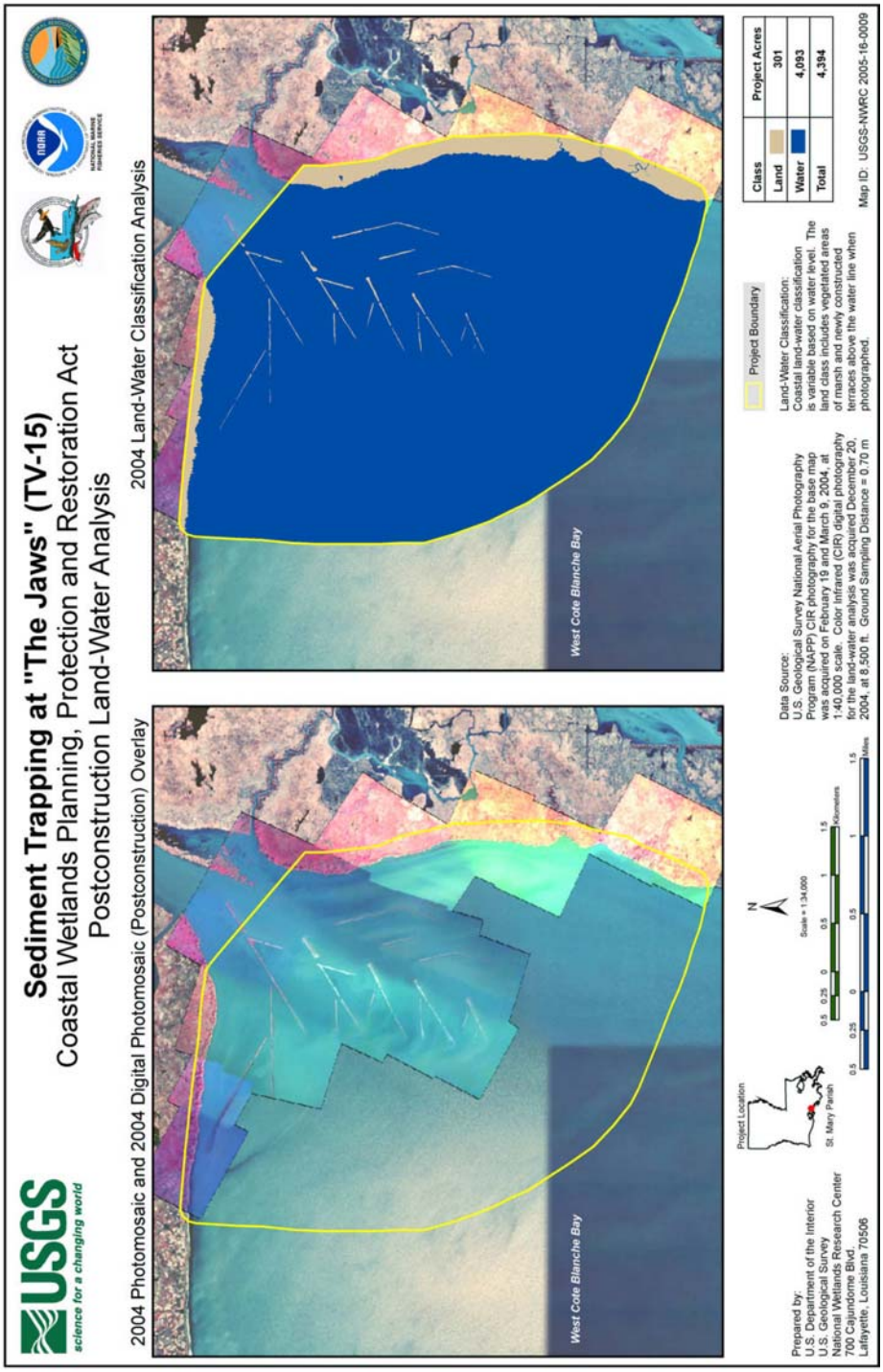

Figure 2. Land/water analysis of aerial photography taken December 20, 2004, showing the acreage of land and water in the project area of Sediment Trapping at the Jaws (TV-15).

Table 1. Acreages of land and water from the 2004 land-water analysis of the Sediment Trapping at the Jaws (TV-15) project area.

Class	Project Acres	Percentage (%)
Land	301	7
Water	4093	93
Total	4394	100

V. Conclusions

a. Project Effectiveness

Since project construction was completed in December 2004, no conclusions can be drawn at this time concerning project effectiveness. Changes in land acreage will be determined when the 2008 land/water analysis becomes available.

b. Recommended Improvements

In order to evaluate earthen terrace settlement and any vertical accretion between the terraces, a structural assessment survey performed by a licensed engineering/land surveying firm is recommended within the first five years of construction. The date of assessment survey is to be agreed upon by the state and federal sponsor at the annual maintenance inspection.

c. Lessons Learned

Initial geo-technical reports indicated that this project would be difficult if not impossible to construct. Based on the apparent success of the construction of the TV-15 terraces, consideration should be given to the understandably conservative recommendations provided by consultants on future projects of this type.

VI. REFERENCES

Chabreck, R.H., T. Joanen, and A.W. Palmisano 1968. Vegetative type map of the Louisiana coastal marshes. Louisiana Wildlife and Fisheries Commission, Baton Rouge, LA. Scale 1:100,000.

Chabreck, R.H., and G. Linscombe 1978. Vegetative type map of the Louisiana coastal marshes. Louisiana Wildlife and Fisheries Commission, Baton Rouge, LA. Scale 1:100,000.

_____. 1988. Vegetative type map of the Louisiana coastal marshes. Louisiana Wildlife and Fisheries Commission, Baton Rouge, LA. Scale 1:100,000.

Good, B., J. Buchtel, D. Meffert, J. Radford, K. Rhinehart, and R. Wilson 1995. Louisiana's major coastal navigation channels. Unpublished report. Baton Rouge: Louisiana Department of Natural Resources, Office of Coastal Management and Restoration. 57 pp.

O'Neil, T. 1949. Map of the southern part of Louisiana showing vegetation types of the Louisiana marshes. Louisiana Wildlife and Fisheries Commission, New Orleans, LA.

U.S. Department of Agriculture, Natural Resources Conservation Service 2001. The PLANTS Database, Version 3.1 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA. State of Louisiana PLANTS list downloaded February 12, 2003.

Walker, N., A. Hammack, R. Cunningham, and H. Roberts 1997. Satellite observations of circulation, sediment distribution and transport in the Atchafalaya-Vermilion Bay System. Coastal Studies Institute, Louisiana State University, Baton Rouge, LA.

Appendix A
(Inspection Photographs)

No inspection was conducted in calendar year 2005 because this project was recently constructed, therefore no photographs were available.

Appendix B
(Three-Year Budget Projection)
JAWS SEDIMENT / TV15 / PPL6
Three-Year Operations & Maintenance Budgets 07/01/2005 - 06/30/08

Project Manager	O & M Manager	Federal Sponsor	Prepared By
		NMFS	

	2005/2006	2006/2007	2007/2008
Maintenance Inspection	$ 4,955.00	$ 5,119.00	$ 5,288.00
Structure Operation	$ -	$ -	$ -
Administration	$ -	$ -	$ -
Maintenance/Rehabilitation			

05/06 Description:

E&D	$ -		
Construction	$ -		
Construction Oversight	$ -		
Sub Total - Maint. And Rehab.	$ -		

06/07 Description

E&D		$ -	
Construction		$ -	
Construction Oversight		$ -	
	Sub Total - Maint. And Rehab.	$ -	

07/08 Description:

E&D			$ -
Construction			$ -
Construction Oversight			$ -
		Sub Total - Maint. And Rehab.	$ -

	2005/2006	2006/2007	2007/2008
Total O&M Budgets	**$ 4,955.00**	**$ 5,119.00**	**$ 5,288.00**

OPERATION AND MAINTENANCE BUDGET 07/01/2005-06/30/2006

JAWS SEDIMENT/TV-15/PPL6

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	$4,955.00	**$4,955.00**
General Structure Maintenance	LUMP	1	$0.00	**$0.00**
Engineering and Design	LUMP	1	$0.00	**$0.00**
Operations Contract	LUMP	1	$0.00	**$0.00**
Construction Oversight	LUMP	1	$0.00	**$0.00**

ADMINISTRATION

LDNR / CRD Admin.	LUMP	0	$0.00	$0.00
FEDERAL SPONSER Admin.	LUMP	0	$0.00	$0.00
SURVEY Admin.	LUMP	0	$0.00	$0.00
OTHER				$0.00
			TOTAL ADMINISTRATION COSTS:	**$0.00**

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:					
Secondary Monument	EACH	0	$0.00	$0.00
Staff Gauge / Recorders	EACH	0	$0.00	$0.00
Marsh Elevation / Topography	LUMP	0	$0.00	$0.00
TBM Installation	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL SURVEY COSTS:	**$0.00**

GEOTECHNICAL

GEOTECH DESCRIPTION:				
Borings	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL GEOTECHNICAL COSTS:	**$0.00**

CONSTRUCTION

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
Filter Cloth / Geogrid Fabric		SQ YD	0	$0.00	$0.00
Navagation Aid		EACH	0	$0.00	$0.00
Signage		EACH	0	$0.00	$0.00
General Excavation / Fill		CU YD	0	$0.00	$0.00
Dredging		CU YD	0	$0.00	$0.00
Sheet Piles (Lin Ft or Sq Yds)			0	$0.00	$0.00
Timber Piles (each or lump sum)			0	$0.00	$0.00
Timber Members (each or lump sum)			0	$0.00	$0.00
Hardware		LUMP	1	$0.00	$0.00
Materials		LUMP	1	$0.00	$0.00
Mob / Demob		LUMP	1	$0.00	$0.00
Contingency		LUMP	1	$0.00	$0.00
General Structure Maintenance		LUMP	1	$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
				TOTAL CONSTRUCTION COSTS:	**$0.00**

TOTAL OPERATIONS AND MAINTENANCE BUDGET: **$4,955.00**

OPERATION AND MAINTENANCE BUDGET 07/01/2006-06/30/2007

JAWS SEDIMENT/TV-15/PPL6

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	$5,119.00	**$5,119.00**
General Structure Maintenance	LUMP	1	$0.00	**$0.00**
Engineering and Design	LUMP	1	$0.00	**$0.00**
Operations Contract	LUMP	1	$0.00	**$0.00**
Construction Oversight	LUMP	1	$0.00	**$0.00**

ADMINISTRATION

LDNR / CRD Admin.	LUMP	0	$0.00	$0.00
FEDERAL SPONSER Admin.	LUMP	0	$0.00	$0.00
SURVEY Admin.	LUMP	0	$0.00	$0.00
OTHER				$0.00
			TOTAL ADMINISTRATION COSTS:	**$0.00**

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:					
Secondary Monument	EACH	0	$0.00	$0.00
Staff Gauge / Recorders	EACH	0	$0.00	$0.00
Marsh Elevation / Topography	LUMP	0	$0.00	$0.00
TBM Installation	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL SURVEY COSTS:	**$0.00**

GEOTECHNICAL

GEOTECH DESCRIPTION:					
Borings	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL GEOTECHNICAL COSTS:	**$0.00**

CONSTRUCTION

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
Filter Cloth / Geogrid Fabric		SQ YD	0	$0.00	$0.00
Navagation Aid		EACH	0	$0.00	$0.00
Signage		EACH	0	$0.00	$0.00
General Excavation / Fill		CU YD	0	$0.00	$0.00
Dredging		CU YD	0	$0.00	$0.00
Sheet Piles (Lin Ft or Sq Yds)			0	$0.00	$0.00
Timber Piles (each or lump sum)			0	$0.00	$0.00
Timber Members (each or lump sum)			0	$0.00	$0.00
Hardware		LUMP	1	$0.00	$0.00
Materials		LUMP	1	$0.00	$0.00
Mob / Demob		LUMP	1	$0.00	$0.00
Contingency		LUMP	1	$0.00	$0.00
General Structure Maintenance		LUMP	1	$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
				TOTAL CONSTRUCTION COSTS:	**$0.00**

TOTAL OPERATIONS AND MAINTENANCE BUDGET: **$5,119.00**

OPERATION AND MAINTENANCE BUDGET 07/01/2007-06/30/2008

JAWS SEDIMENT/TV-15/PPL6

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	$5,288.00	**$5,288.00**
General Structure Maintenance	LUMP	1	$0.00	**$0.00**
Engineering and Design	LUMP	1	$0.00	**$0.00**
Operations Contract	LUMP	1	$0.00	**$0.00**
Construction Oversight	LUMP	1	$0.00	**$0.00**

ADMINISTRATION

LDNR / CRD Admin.	LUMP	1	$0.00	$0.00
FEDERAL SPONSER Admin.	LUMP	1	$0.00	$0.00
SURVEY Admin.	LUMP	1	$0.00	$0.00
OTHER				$0.00
			TOTAL ADMINISTRATION COSTS:	**$0.00**

MAINTENANCE / CONSTRUCTION

SURVEY

SURVEY DESCRIPTION:				
Secondary Monument	EACH	0	$0.00	$0.00
Staff Gauge / Recorders	EACH	0	$0.00	$0.00
Marsh Elevation / Topography	LUMP	0	$0.00	$0.00
TBM Installation	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL SURVEY COSTS:	**$0.00**

GEOTECHNICAL

GEOTECH DESCRIPTION:				
Borings	EACH	0	$0.00	$0.00
OTHER				$0.00
			TOTAL GEOTECHNICAL COSTS:	**$0.00**

CONSTRUCTION

CONSTRUCTION DESCRIPTION:					
Rip Rap	LIN FT	TON / FT	TONS	UNIT PRICE	
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
	0	0.0	0	$0.00	$0.00
Filter Cloth / Geogrid Fabric		SQ YD	0	$0.00	$0.00
Navagation Aid		EACH	0	$0.00	$0.00
Signage		EACH	0	$0.00	$0.00
General Excavation / Fill		CU YD	0	$0.00	$0.00
Dredging		CU YD	0	$0.00	$0.00
Sheet Piles (Lin Ft or Sq Yds)			0	$0.00	$0.00
Timber Piles (each or lump sum)			0	$0.00	$0.00
Timber Members (each or lump sum)			0	$0.00	$0.00
Hardware		LUMP	1	$0.00	$0.00
Materials		LUMP	1	$0.00	$0.00
Mob / Demob		LUMP	1	$0.00	$0.00
Contingency		LUMP	1	$0.00	$0.00
General Structure Maintenance		LUMP	1	$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
OTHER				$0.00	$0.00
				TOTAL CONSTRUCTION COSTS:	**$0.00**

TOTAL OPERATIONS AND MAINTENANCE BUDGET: **$5,288.00**

Appendix C
(Field Inspection Notes)

No inspection was conducted in calendar year 2005 because this project was recently constructed, therefore no field inspection notes were available.